Mediant™ 600

VoIP Media Gateway

SIP Protocol

Installation Manual

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AudioCodes

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Notice

This Installation Manual describes the hardware installation and quick configuration setup for AudioCodes Mediant 600 SIP Voice-over-IP (VoIP) gateway.

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Related Documentation

Document Name
Product Reference Manual
SIP Release Notes
Mediant 600 & Mediant 1000 SIP User's Manual

Notes: Throughout this manual and unless otherwise specified, the term *device* refers to the Mediant 600 gateway.

Note: The device is an **indoor** unit and therefore, must be installed **only** indoors.

Caution Electrical Shock

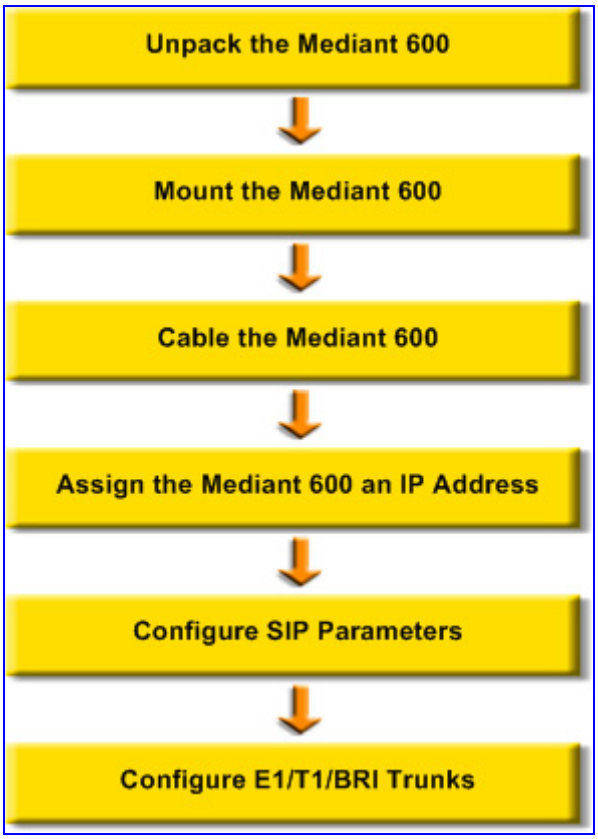
Do not open or disassemble this device. The device carries high voltage and contact with internal components may expose you to electrical shock and bodily harm.

Warning: Disconnect the gateway from the mains and Telephone Network Voltage (TNV) before servicing.

1 Introduction

This manual provides you with step-by-step procedures for initial and basic setup of the device, including hardware installation and software configuration. The flowchart below summarizes these steps.

Figure 1-1: Summary of Steps for Installing the Device



Note: For detailed information on how to fully configure the device, refer to the device's *User's Manual*.

Reader's Notes

2 Installing the Device

This section describes the device's hardware installation. This includes a physical description of the device, unpacking the shipped package, and mounting and cabling procedures.

2.1 Physical Description

Mediant 600 is 1U high compact unit that can be installed in a 19-inch industrial rack (using mounting brackets). The device supports Basic Rate Interface (BRI), PRI E1/T1, FXS, and FXO interfaces, and can be supplied in one of the following hardware configurations:

- 1 x E1/T1 port (can support also Fractional E1/T1)
- 2 x E1/T1 ports
- 4 x BRI ports (supporting up to 8 voice calls)
- 8 x BRI ports (supporting up to 16 voice calls)
- 4 x BRI ports and 1 x E1/T1 port
- 4 x BRI and 4 x FXS ports
- 4 x BRI and 4 x FXO ports
- 4 x FXS ports and 1 x E1/T1 port
- 4 x FXO ports and 1 x E1/T1 port

2.1.1 Front Panel

The device's front panel is shown in the figure below and described in the subsequent table:

Figure 2-1: Front Panel

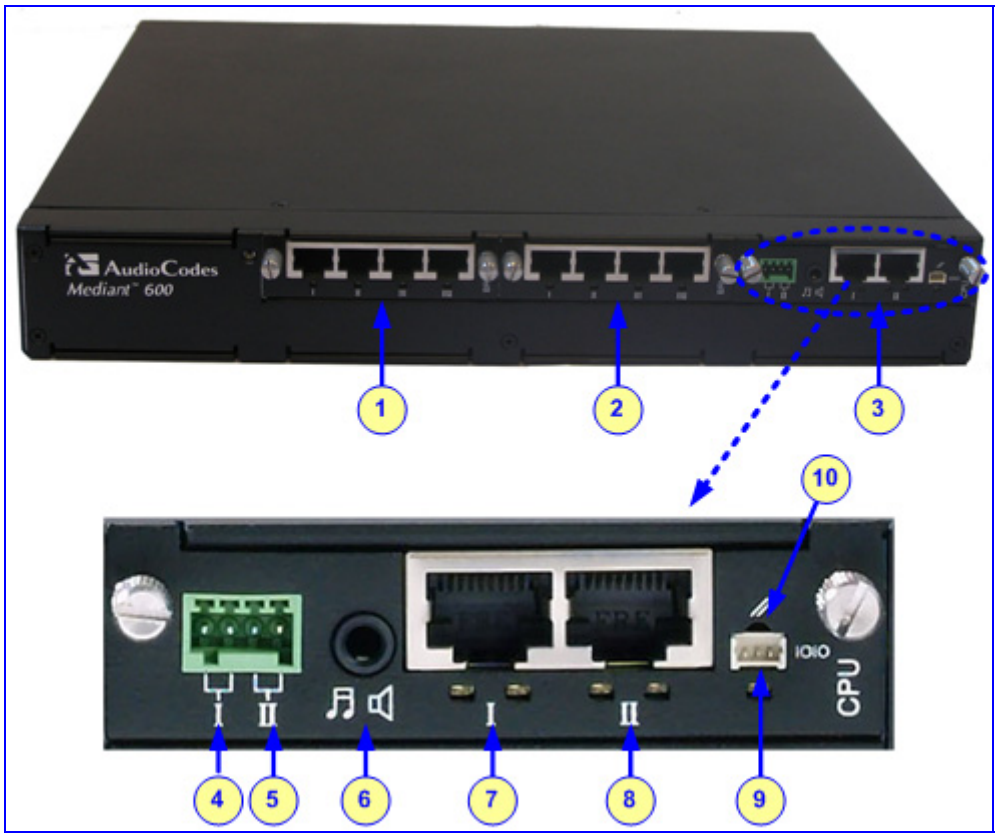


Table 2-1: Front-Panel Description

Item #	Label	Component Description
1	**BRI**, **TRUNKS**, **FXO**, or **FXS**	Input/output (I/O) telephony interface modules: ▪ Up to two BRI modules, supporting up to eight BRI interfaces, where each module provides four BRI ports (RJ-45 ports) ▪ Up to two TRUNKS modules, supporting 1 or 2 E1/T1/J1 PRI spans, including fractional E1/T1 (RJ-48c ports) ▪ Up to two FXO modules, supporting up to eight FXO interfaces, where each module provides four FXO ports (RJ-11 ports) ▪ Up to two FXS modules, supporting up to eight FXS interfaces, where each module provides four FXS ports (RJ-11 ports) **Note:** For a list of the various interface configuration support, refer to 'Physical Description' on page 9.
2	**CPU**	Central processing unit (refer to enlarged view).

Item #	Label	Component Description
Enlarged View of CPU (#3)		
4	**I**	Dry contact port (normally open) - can be connected to an external audible or visual alarm system (bell, siren, hooter, or light).
5	**II**	Dry contact port (normally closed) - can be connected to an external audible or visual alarm system (bell, siren, hooter, or light).
6	♫	Audio IN/OUT (currently, will be supported in the next applicable release.)
7	**I**	10/100Base-TX Ethernet Port 1. (Two Ethernet ports provide a dual Ethernet redundancy scheme, protecting against failure such as a disconnection of any cable or associated LAN switch port.)
8	**II**	10/100Base-TX Ethernet Port 2. Refer to description above.
9	**I0I0**	RS-232 port - for accessing the CLI and for receiving error/notification messages. A 9-pin DB adapting cable is supplied.
10	//	Reset button - for resetting the device and optionally, for restoring the device's parameters to their factory defaults (refer to 'Restoring Factory Default Settings' on page 41).

2.1.2 Rear Panel

The device's rear panel is shown in the figure below and described in the subsequent table.

Figure 2-2: Rear Panel

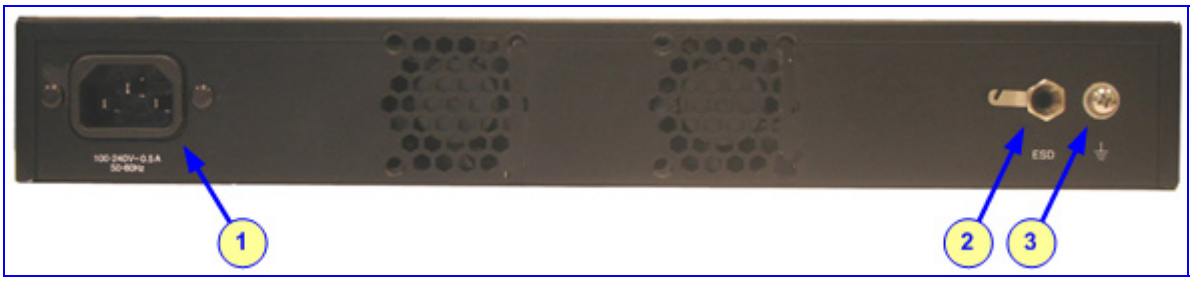


Table 2-2: Rear-Panel Description

Item #	Label	Component Description
1	**100 - 240V 0.5A 50-60Hz**	AC power supply entry plug.
2	**ESD**	Electrostatic Discharge (ESD) socket - for attaching an anti-static wrist strap to your wrist and to the ESD socket on the chassis.
3	⏚	Protective earthing screw.

2.2 Unpacking and Checking Package Contents

Follow the procedure below for unpacking the received carton in which the device is shipped.

➢ **To unpack the device:**

1. Open the carton and remove packing materials.
2. Remove Mediant 600 from the carton.
3. Check that there is no equipment damage.
4. Ensure that in addition to Mediant 600, the package contains the following items:
   - One AC power cable.
   - Four anti-slide bumpers for desktop installation option.
   - Two mounting brackets and four screws for 19-inch rack mounting.
   - Two meter-length RS-232 DB-9 adaptor cable (for direct serial connection to PC).
5. Check, retain and process any documents.
6. Notify AudioCodes or your local supplier of any damage or discrepancies.

2.3 Mounting the Device

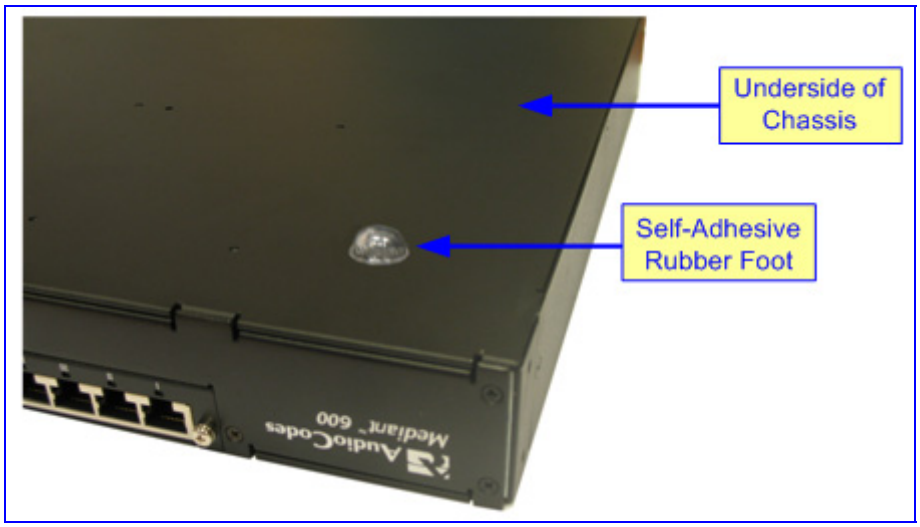
The device can be mounted in one of the following ways:

- Desktop (refer to 'Desktop Mounting' on page 12)
- Installed in a standard 19-inch rack (refer to '19-Inch Rack Mounting' on page 13)

2.3.1 Desktop Mounting

The device can be mounted on a desktop, by attaching four adhesive, anti-slide rubber bumpers (supplied) to the underside of the device. Once you have attached these bumpers, simply place it on a desktop with the bumpers in contact with the surface.

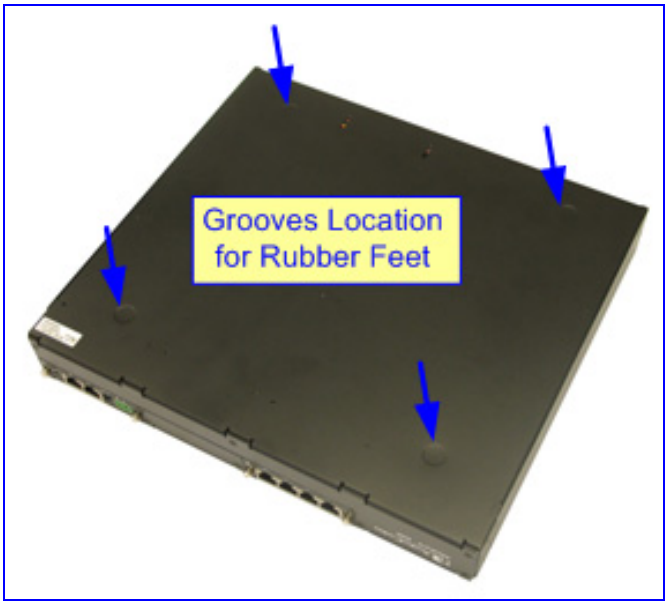
Figure 2-3: Underside of Device with Rubber Foot



➢ To stick the anti-slide rubber bumpers to the device:

1. Flip the device over so that its underside faces up.
2. Locate the four anti-slide grooves on the device's underside–one in each of the four corners, as shown in the figure below:

Figure 2-4: Location on Underside of Grooves for Rubber Feet



3. Peel off the adhesive, anti-slide rubber feet and stick one in each anti-slide groove.
4. Flip the device over again so that it is resting on its underside and the rubber bumpers are in contact with the surface.

2.3.2 19-Inch Rack Mounting

The device can be installed in a standard 19-inch rack. Before installing it in the rack, ensure that you have a pre-installed rack shelf on which the device can be placed.

Rack Mount Safety Instructions

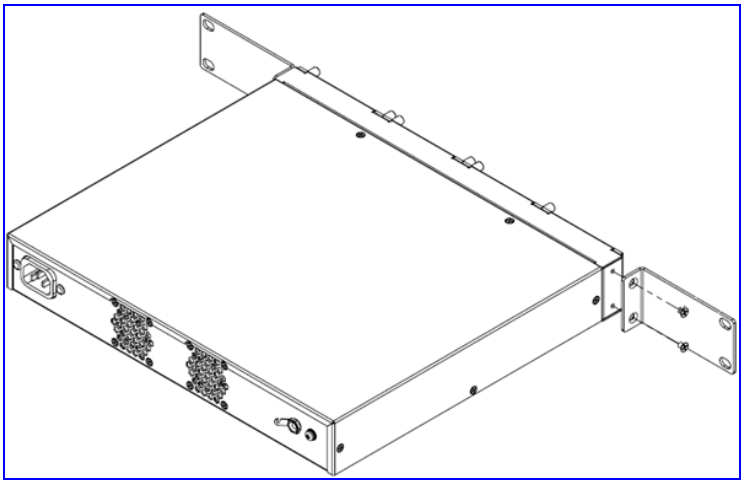
When installing the chassis in a rack, implement the following safety instructions:

- **Elevated Operating Ambient Temperature:** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) of 45°C (113°F).
- **Reduced Air Flow:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation on the equipment is not compromised.
- **Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing:** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips.)

➢ To mount the device in a 19-inch rack:

1. Attach the two mounting ear brackets (supplied) to each side of the device's chassis, using the supplied screws, as shown in the figure below:

Figure 2-5: Attaching the Mounting Ear Brackets



2. Place the device on a pre-installed shelf in the rack.
3. Attach the other end of the mounting brackets (that you installed in Step 1) to the vertical track of the rack's frame, using standard 19-inch rack bolts (not supplied).

2.4 Cabling the Device

This section describes the cabling of the device.

Electrical Earthing

The device must be permanently connected to the earth using the screw provided on the rear panel. Use 14-16 AWG wire and a proper ring terminal for the earthing.

➢ **To cable the device, take these steps:**

1. Permanently earth (ground) the device (refer to 'Earthing (Grounding) the Device' on page 15).
2. Connect the IP / Ethernet network (refer to 'Connecting to the Ethernet Network' on page 16).
3. Connect the PRI E1/T1 trunk interfaces (refer to 'Connecting to E1/T1 Trunks' on page 17).
4. Connect the E1/T1 ports for PSTN Fallback (refer to 'Connecting E1/T1 Trunks for PSTN Fallback' on page 18).
5. Connect the BRI interfaces (refer to 'Connecting the BRI Ports' on page 19).
6. Connect BRI interfaces for PSTN Fallback (refer to 'Connecting BRI Interfaces for PSTN Fallback' on page 20).
7. Connect to the FXS / FXO interfaces (refer to 'Connecting to FXS/FXO Interfaces' on page 21).
8. Connect the analog Lifeline telephone (refer to 'Cabling the Analog Lifeline Phone' on page 22).
9. Connect the Dry Contact Relay Alarm System (refer to 'Connecting the Dry Contact Relay Alarm System' on page 22).
10. Connect the power supply (refer to 'Connecting to the Power Supply' on page 24).

For connecting the RS-232 port to a PC for serial communication, refer to 'Connecting the RS-232 Port to a PC' on page 24.

Once you have cabled the device, you can begin configuring the device (refer to 'Configuring the Device' on page 25).

2.4.1 Connecting to Earth (Ground)

The device must be permanently connected to earth (ground), using an equipment-earthing conductor.

Protective Earthing

The equipment is classified as Class I EN60950 and UL60950 and must be earthed at all times.

For Finland: "Laite on liltettava suojamaadoituskoskettimilla varustettuun pistorasiaan."

For Norway: "Apparatet rna tilkoples jordet stikkontakt."

For Sweden: "Apparaten skall anslutas till jordat uttag."

➢ **To earth the device:**

1. Connect an electrically earthed strap of 16 AWG wire (minimum) to the chassis' earthing screw (located on the rear panel), using the supplied washer.
2. Connect the other end of the strap to a protective earthing. This should be in accordance with the regulations enforced in the country of installation.

2.4.2 Connecting to IP Network

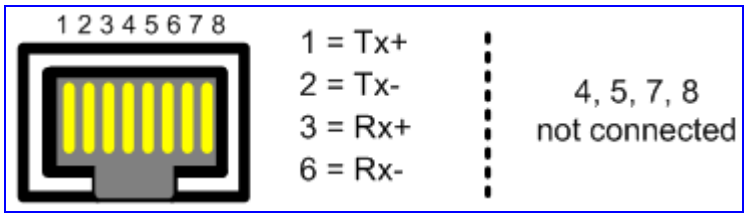
The device's CPU module provides two 10/100Base-TX RJ-45 ports for connectivity to the Ethernet network (IP network). The dual ports provide Ethernet redundancy.

➢ **To connect the device to the IP/Ethernet network:**

1. On the CPU module, connect the first Ethernet port (labeled **I**) directly to the Ethernet network, using a straight-through RJ-45 Ethernet cable.
2. Optionally, for Ethernet redundancy, connect the second Ethernet port (labeled **II**) to the Ethernet network.

The RJ-45 connector pinouts are shown in the figure below:

Figure 2-6: RJ-45 Connector Pinouts



Notes:

- For Ethernet redundancy, it's recommended to connect each of the Ethernet ports to a different switch.
- When assigning an IP address to the device using HTTP (refer to 'Assigning an IP Address Using HTTP' on page 25), you may be required to cable the Ethernet port differently.

2.4.3 Connecting to E1/T1 Trunks

The device supports up to two E1/T1 trunk interfaces, providing up to two RJ-48c ports. When implementing two trunks, the device can support PSTN Fallback, allowing trunks to connect to the PSTN during a power outage (i.e., no communication with the IP network). The device also supports fractional E1/T1.

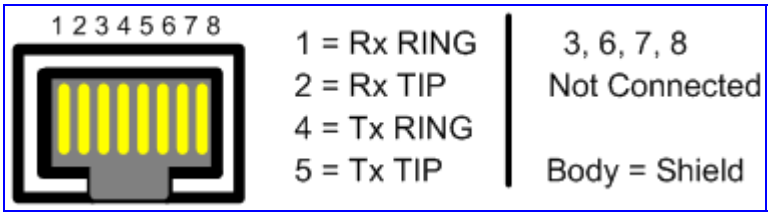
Warning: To protect against electrical shock and fire, use a 26 AWG min wire to connect T1 or E1 ports to the PSTN.

➢ To connect the E1/T1 trunks:

1. Connect the E1/T1 trunk cables to the device's RJ-48c ports.
2. Connect the other ends of the trunk cables to your PBX/PSTN switch.

RJ-48c trunk connectors are wired according to the figure below.

Figure 2-7: RJ-48c Connector Pinouts for E1/T1



The digital trunks can also be connected in such a way as to support PSTN Fallback in case of power outage, as described in the procedure below:

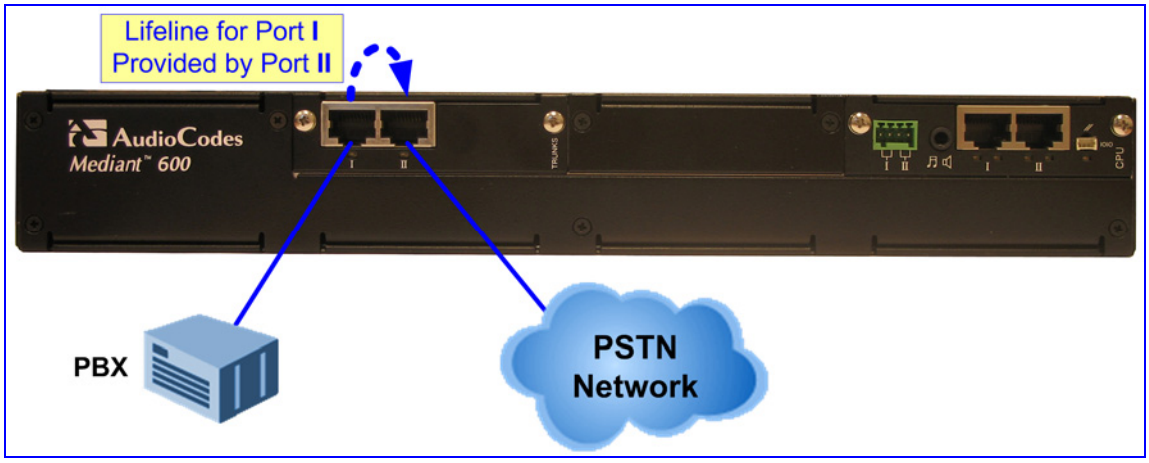
➢ To connect the digital trunk interfaces for PSTN Fallback:

- For a 1+1 Fallback option, connect Port **I** to your PBX, and Port **II** to the PSTN. If the power fails, a relay connects Trunk I to II, acting as a Fallback for PSTN trunks.

2.4.4 Connecting E1/T1 Trunks for PSTN Fallback

The device offers a PSTN Fallback feature when provided with two E1/T1 PRI spans. The digital module's Port **II** serves as a dedicated Fallback port connected to the PSTN. In the event of a power failure (i.e., no Ethernet link), a relay connects ports **I** and **II** by the closing of a metallic switch inside the module, re-routing trunk traffic from the PBX to the PSTN is established (instead of from the PBX to the IP network).

Figure 2-8: PSTN Lifeline for PRI E1/T1



Notes:

- Only ISDN supports the PSTN Fallback feature when the number of supported channels (e.g., 30) is less than the maximum number of possible channels provided by the physical ports (e.g., two E1 trunks). When the number of supported channels (e.g., 60) equals the maximum number of channels provided by the physical ports (e.g., two E1 trunks), then other protocols such as CAS are also supported.
- This PSTN Fallback feature has no relation to the PSTN Fallback Software Upgrade Key.

2.4.5 Connecting to ISDN BRI Lines

The device can house up to two BRI modules, each supporting four BRI ports, thereby providing a total of up to 8 BRI ports.

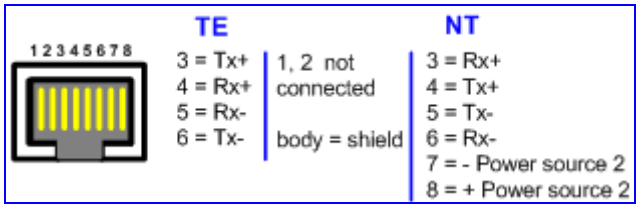
Warning: To protect against electrical shock and fire, use a 26 AWG min wire to connect the BRI ports to the PSTN.

➢ To connect the BRI ports:

1. Connect the BRI cable to the device's BRI RJ-45 port.
2. Connect the other end of the cable to your ISDN telephone or PBX/PSTN switch.

A BRI port can be configured either as TE (Termination Equipment/user side) or NT (Network Termination/network side). The connector pinouts vary according to the configuration, as detailed in the following figure:

Figure 2-9: RJ-45 Connector Pinouts for BRI Ports



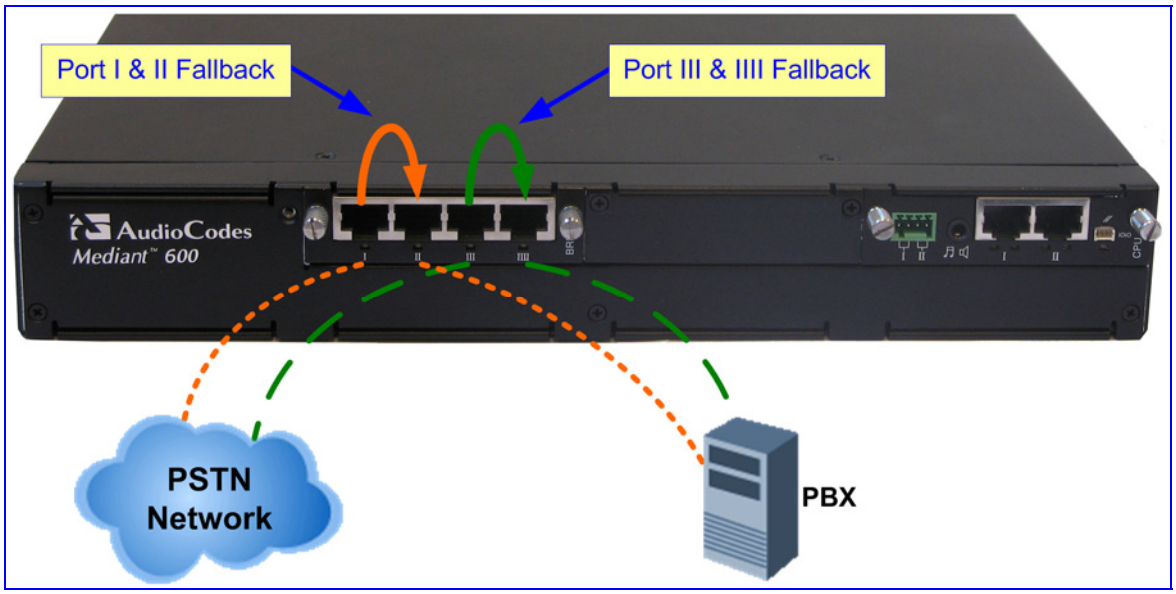
When configured as NT, the BRI port drives a nominal voltage of 38 V with limited current supply of up to 100 mA. The voltage is of Power Source 1 type (line voltage).

2.4.6 Connecting BRI Interfaces for PSTN Fallback

The PSTN Fallback feature provides a BRI interface connection to the PSTN upon a power outage (i.e., Ethernet link failure). This allows a telephone or PBX connected to a BRI port to continue making calls through the PSTN network (instead of through the IP network).

The PSTN Fallback is provided by connecting adjacent BRI ports, where one port is connected to, for example, a PBX and its adjacent port is connected to an active PSTN line (i.e., normal operation, not only dedicated to Fallback). In the event of a power failure, a relay connects the adjacent BRI ports (i.e., ports **I** to **II**, and ports **III** to **IIII**) by the closing of a metallic switch inside the module.

Figure 2-10: PSTN Fallback for BRI Ports



Notes:

- Damage can be caused to external equipment if PSTN Fallback is activated on two ports that are configured as user side.
- Ensure that paired BRI ports (i.e., ports **I** and **II**, and ports **III** and **IIII**) are not identically configured (i.e., both user or both net side); otherwise, PSTN Fallback does not function.

2.4.7 Connecting to FXS/FXO Interfaces

The procedure below describes the cabling of the device's FXS and FXO module analog interfaces.

Warnings:

- To protect against electrical shock and fire, use a 26 AWG min wire to connect FXO ports to the PSTN.
- FXO ports are considered to be TNV-3; FXS ports are considered to be TNV-2.
- Ensure that FXS and FXO ports are connected to the appropriate, external devices; otherwise, damage to the device can occur.

Notes:

- FXO (Foreign Exchange Office) is the interface replacing the analog telephone and connects to a Public Switched Telephone Network (PSTN) line from the Central Office (CO) or to a Private Branch Exchange (PBX). The FXO is designed to receive line voltage and ringing current, supplied from the CO or the PBX (just like an analog telephone). An FXO VoIP device interfaces between the CO/PBX line and the Internet.
- FXS (Foreign Exchange Station) is the interface replacing the Exchange (i.e., the CO or the PBX) and connects to analog telephones, dial-up modems, and fax machines. The FXS is designed to supply line voltage and ringing current to these telephone devices. An FXS VoIP device interfaces between the analog telephone devices and the Internet.

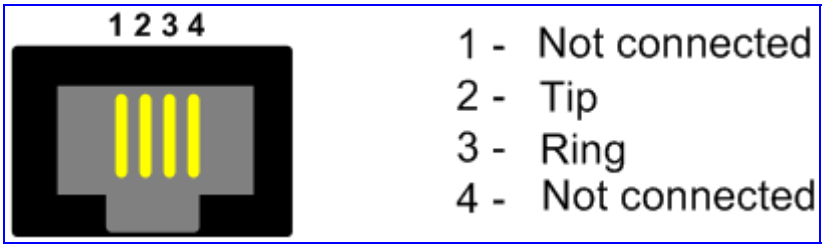
➢ To connect the FXS /FXO interfaces:

■ Using the device's RJ-11 connectors on the FXS/FXO module, connect the device to the required telephone interfaces:

- **FXS:** connect the FXS module's ports to fax machines, modems, and/or telephones.
- **FXO:** connect the FXO module's ports to telephone exchange analog lines or PBX extensions.

The RJ-11 connector pinouts are shown in the figure below:

Figure 2-11: RJ-11 Connector Pinouts



2.4.8 Connecting to Analog Lifeline Phone

The device's FXS modules provide a Lifeline phone connection on **Port I**. The Lifeline provides a wired analog POTS phone connection to any PSTN or PBX, which provides PSTN connectivity upon a power outage or when the network connection fails. For each FXS module installed in the device, you can configure one Lifeline phone connection (using Port I).

➢ To cable the FXS module's Lifeline:

1. Connect the Lifeline Splitter (supplied) to Port **I** on the device's FXS module.
2. Connect the Lifeline phone to Port **A** on the Lifeline Splitter.
3. Connect an analog PSTN line to Port **B** on the Lifeline Splitter.

The Lifeline splitter connects pins 1 and 4 to another source of an FXS port, and pins 2 and 3 to the POTS phone, as shown in the figure below.

Figure 2-12: RJ-11 Connector Pinouts for FXS Lifeline

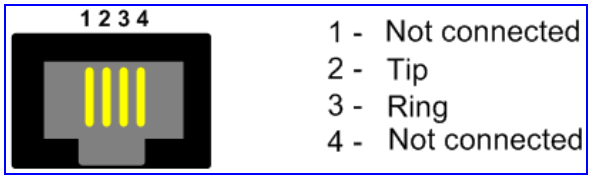
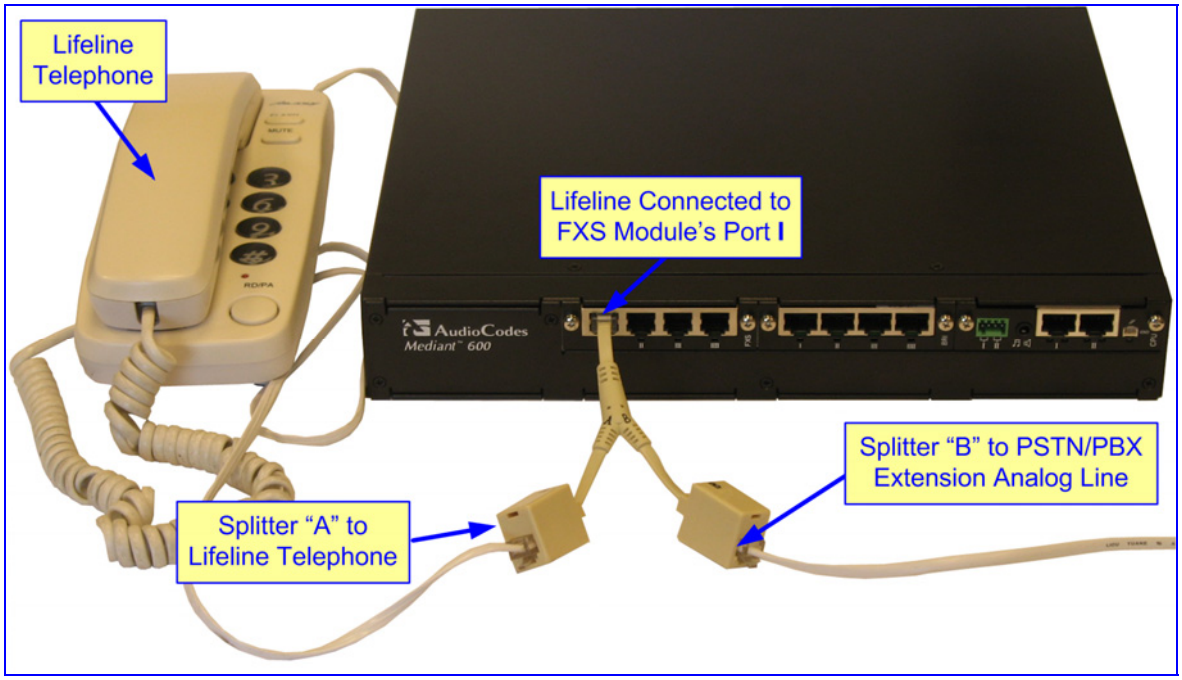


Figure 2-13: Analog PSTN Lifeline Cabling Setup



Notes:

- Analog Lifeline is supported only by the FXS modules.
- The Lifeline feature activated upon network failure can be disabled using the LifeLineType *ini* file parameter (described in the device's *User's Manual*).

2.4.9 Connecting to Dry Contact Relay Alarm System

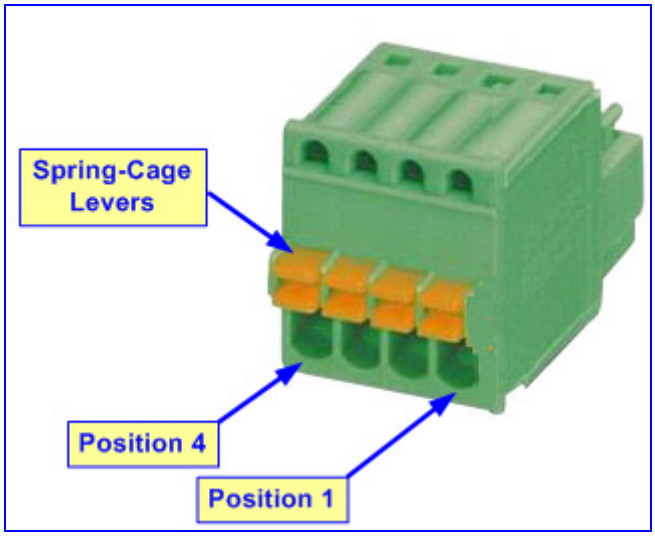
The dry contact ports **I** and **II** located on the device's CPU module, allows you to connect the device to an external audible or visual alarm system. The table below describes the operational status of these dry contact ports.

Table 2-3: Dry Contact Operational Description

Port	Normal State	Alarm Severity State
I	During normal operation, the dry contact is open.	If a Major alarm is generated, the dry contact closes.
II	During normal operation, the dry contact is closed.	If a Critical alarm is generated, the dry contact opens.

The external alarm system is connected to the device's dry contact connector on the CPU module, using the supplied dry contact wires' mate (refer to the figure below). The mate provides four spring-cage terminal block connector labeled 4, 3, 2 and 1 (from left to right). These connections correspond to the four pins of the dry contact connector on the CPU module.

Figure 2-14: Dry Contact Wires' Mate



You need to supply your own wiring (for connecting to the mate's spring-cage connections) as well as a visual and/or audible alarm system attached at the other end of the wires. The dry contact connector suites wire sizes in the range 20 to 28 AWG. In addition, the dry contact system can receive a current of up to 1.5 A.

Note: The dry contact alarm provided on the CPU must be connected only to SELV (Safety Extra-Low Voltage) non-energy hazard sources (Class 2) as per UL 60950 and EN 60950.

➢ **To set up a dry contact system:**

1. Insert two wires into the mate's spring-cage wire connectors in position 4 and 3 for the device's dry contact Port **I**, and two wires in position 2 and 1 (for the device's dry contact Port **II**), by performing the following:
   a. With a sharp, pointed object, press the position's corresponding orange button; the cage of the connection opens.
   b. Insert the wire into the connector, and then release the orange button; the cage closes, securing the wire in place.
2. Connect the other ends of the dry contact wiring to the alerts system (alarm, siren, or light) according to your preferences and requirements.

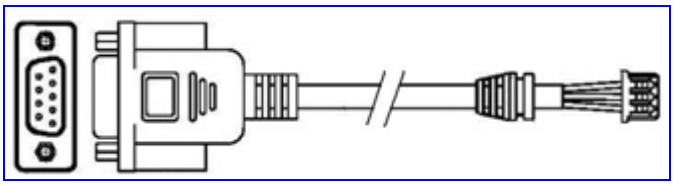
2.4.10 Connecting RS-232 Serial Interface to PC

The devices RS-232 interface port is used to access the CLI for serial communication and to receive error/notification messages. A 9-pin DB adaptor cable is supplied for connecting this port to a PC, as described in the procedure below.

➢ **To connect the device's serial interface port to a PC:**

1. Connect one end of the crossover RS-232 cable (supplied) to the device's RS-232 port (located on the CPU module and labeled I0I0).
2. Connect the other end of the crossover RS-232 cable (i.e., the DB-9 connector) to either the COM1 or COM2 RS-232 communication port of your PC.

Figure 2-15: RS-232 Cable Adaptor



Notes:
- The RS-232 port is not intended for permanent connection.
- CLI configuration is currently not supported.

2.4.11 Connecting to the Power Supply

The device receives its power from a standard AC electrical outlet. The connection is made using the supplied AC power cord.

Warnings:
- Units must be connected (by service personnel) to a socket-outlet with a protective earthing connection.
- Use only the AC power cord supplied with the device.

➢ **To connect the device to the power supply:**

- Connect the 100-240V~50-60 Hz power socket, located on the device's rear panel, to a standard electrical outlet using the supplied AC power cord.

3 Configuring the Device

This section describes initial, basic setup configuration for the device, using the device's embedded Web server (*Web interface*).

Notes:

- The device is supplied with application software (cmp file) already residing on its flash memory. This software is set to factory defaults.
- If necessary, you can restore the device to factory defaults (refer to 'Restoring Factory Defaults' on page 41).

3.1 Assigning an IP Address

This section describes how to change the device's default IP address so that it corresponds with your network environment. The table below lists the device's default IP address.

Table 3-1: Default IP Addresses

Parameter	Default Value
IP Address	10.1.10.10
Subnet Mask	255.255.0.0
Default Gateway IP Address	0.0.0.0

To assign an IP address to the device, use one of the following methods:

- Device's HTTP-based embedded Web server `accessed using a Web browser (refer to 'Assigning an IP Address using HTTP' on page 25).
- BootP (refer to 'Assigning an IP Address using BootP' on page 27).
- Voice Menu using a standard touch-tone telephone connected to one of the FXS analog ports (refer to 'Assigning an IP Address using Voice Menu Guidance' on page 28).
- Embedded Command Line Interface (CLI), accessed using RS-232 or Telnet (refer to 'Assigning an IP Address using CLI' on page 31).
- Dynamic Host Control Protocol (DHCP) - refer to the *User's Manual*.

Tip: If at a later stage after re-defining the IP address, your IP address is unknown (e.g., forgotten), use the BootP/TFTP utility to access the device (refer to the *Product Reference Manual*).

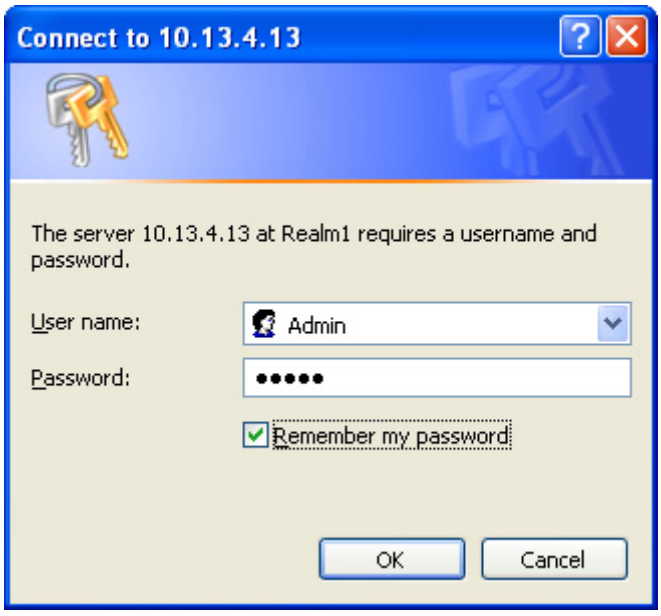
3.1.1 Assigning an IP Address using HTTP

You can assign an IP address to the device, using the device's Web interface.

➢ **To assign an IP address using HTTP:**

1. Disconnect the device from the network and reconnect it to a PC using one of the following methods:
   - **Using a hub or switch between a PC and the device:** Connect the network interface on your PC to a port on a network hub / switch, using a standard Ethernet cable. Connect the device to another port on the same network hub/switch, using another standard Ethernet cable.
   - **Direct connection between a PC and the device:** Connect the network interface on your PC directly to the device, using an Ethernet crossover cable.
2. Change your PC's IP address and subnet mask to correspond with the device's factory default IP address and subnet mask (for default IP addresses, refer to 'Assigning an IP Address' on page 25).
3. Access the device's Web interface:
   a. Open a standard Web browser application and in the Uniform Resource Locator (URL) field, enter the device's default IP address (e.g., http://10.1.10.10); the Web interface's 'Enter Network Password' dialog box appears, as shown in the figure below:

Figure 3-1: Enter Network Password Screen



   b. Enter the device's default login, case-sensitive user name ('Admin') and password ('Admin'), and then click **OK**; the Web interface is accessed, displaying the 'Home' page.

Note: To prevent unauthorized access to the device, it's recommended that after you initially access the Web interface to change the default login user name and password (refer to 'Changing the Login User Name and Password' on page 38).

4. Change the device's IP address, by performing the following:
   a. Open the 'Multiple Interface Table' page (**Configuration** tab > **VoIP** menu > **Network** submenu > **IP Settings**).
   b. Define the device's IP address, subnet mask, and default Gateway IP address (for "OAMP + Media + Control" application type) so that they correspond to your network IP scheme.
   c. Click **Apply**.
   d. Save your settings to the flash memory and reset the device (refer to 'Saving Configuration and Resetting the Device' on page 37).
5. Disconnect your PC from the device or from the hub/switch (depending on the connection method used in Step 1).
6. Reconnect the device and PC (if necessary) to the network.
7. Restore your PC's IP address and subnet mask to their original settings. If necessary, restart your PC and re-access the device via the Web interface with its newly assigned IP address.

3.1.2 Assigning an IP Address using BootP

You can assign an IP address to the device, using the supplied AudioCodes' BootP/TFTP Server application.

Notes:

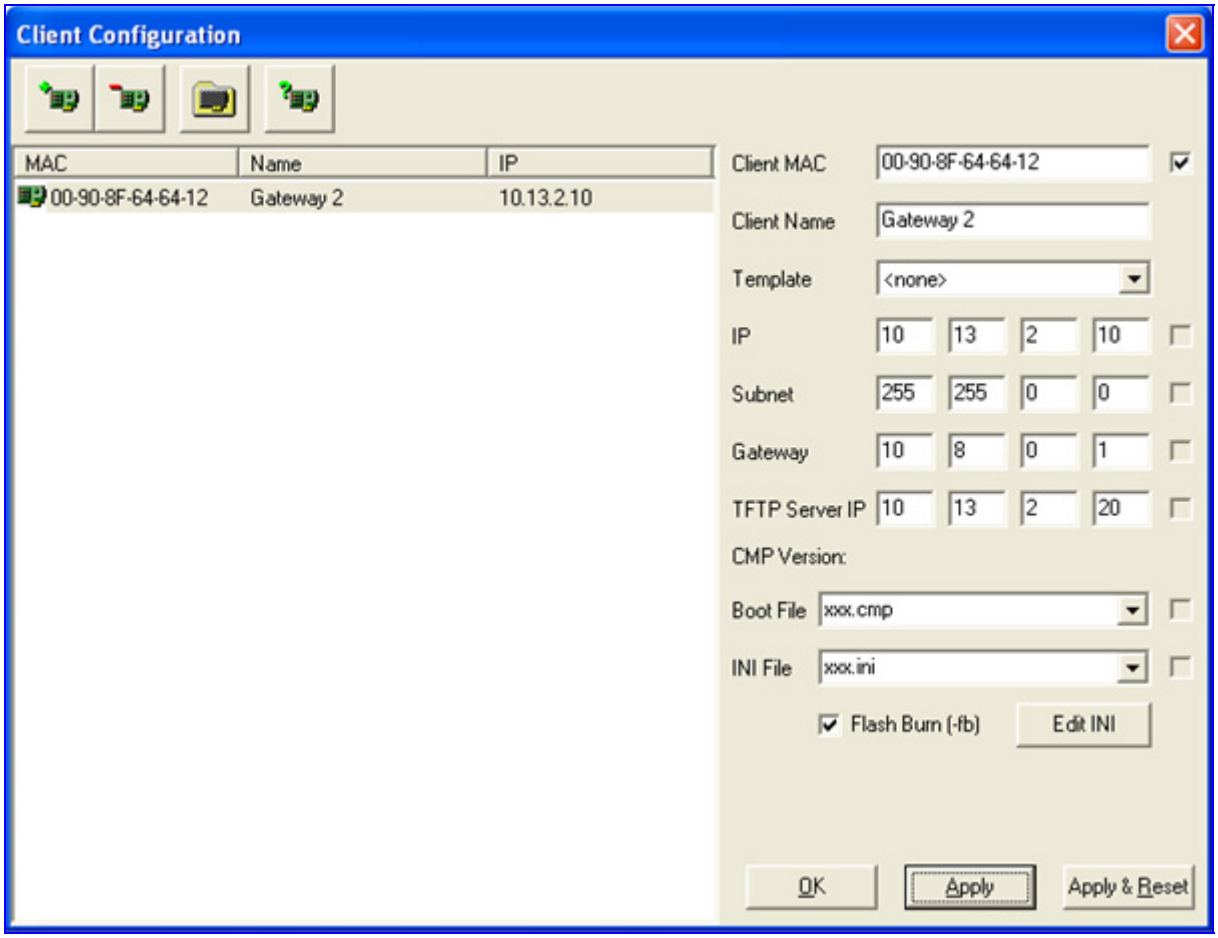
- BootP procedure can also be performed using any standard compatible BootP server.
- For a detailed description of BootP, refer to the *Product Reference Manual.*

➢ To assign an IP address using BootP:

1. Start the BootP application.
2. From the Edit menu, choose **Preferences,** and then in the 'Preferences' dialog box, set the 'Timeout' field to 50.
3. From the Services menu, choose **Clients**; the 'Client Configuration' dialog box appears.
4. Click the **Add New Client** icon; a client with blank parameters is displayed.
5. In the 'Client MAC' field, enter the device's MAC address. The MAC address is printed on the label located on the underside of the device. Ensure that the check box to the right of the field is selected - this enables the client in the BootP tool (if the client is disabled, no replies are sent to BootP requests).
6. In the 'IP' field, enter the IP address (in dotted-decimal notation) that you want to assign to the device.
7. In the 'Subnet' field, enter the subnet mask (in dotted-decimal notation) that you want to assign to the device. Ensure that the subnet mask is valid, otherwise, the device may not function.

8. In the 'Gateway' field, enter the IP address of the default gateway (if any).
9. Click **Apply** to save the new client.
10. Click **OK**; the 'Client Configuration' screen closes.
11. Physically reset the device using the hardware reset button (or power down and then power up the device). This causes the device to use BootP; the device changes its network parameters to the values provided by BootP.

Figure 3-2: BootP Client Configuration Screen



3.1.3 Assigning an IP Address using Voice Menu Guidance

Initial configuration of the device can be performed using a standard touch-tone telephone connected to one of the FXS ports. The voice menu can also be used to query and modify basic configuration parameters.

Notes:

- Assigning an IP address using the Voice menu is relevant only when the device houses an FXS module.
- The Voice menu is automatically disabled after the administrator password is set to a value other than the default ("Admin").

➢ **To assign an IP address using the voice menu guidance:**

1. Connect a telephone to one of the FXS ports.
2. Lift the handset and dial ***12345** (three stars followed by the digits 1, 2, 3, 4, and 5).
3. Wait for the 'configuration menu' voice prompt to be played.
4. To change the IP address:
   a. Press **1** followed by the pound key (**#**); The current IP address of the device is played.
   b. Press the **#** key.
   c. Dial the new IP address. Use the star (*) key instead of periods (.), e.g., 192*168*0*4, and then press **#** to finish.
   d. Review the new IP address, and then press **1** to save.
5. To change the subnet mask:
   a. Press **2** followed by the **#** key; The current subnet mask of the device is played.
   b. Press the **#** key.
   c. Dial the new subnet mask (e.g., 255*255*0*0), and then press **#** to finish.
   d. Review the new subnet mask, and then press **1** to save.
6. To change the default Gateway IP address:
   a. Press **3** followed by the **#** key; The current default Gateway address is played.
   b. Press the **#** key.
   c. Dial the new default Gateway address (e.g., 192*168*0*1), and then press **#** to finish.
   d. Review the new default Gateway address, and then press **1** to save.
7. Hang up the handset.
8. Access the device's Web interface with the new IP address you assigned.

Alternatively, initial configuration may be performed using an HTTP server, as discussed in the *Product Reference Manual* ('Automatic Update Facility'). The Voice Menu may be used to specify the configuration URL.

➢ To set a configuration URL:

1. Obtain the IP address of the configuration HTTP server (e.g., 36.44.0.6).
2. Connect a telephone to one of the FXS ports.
3. Lift the handset and dial ***12345** (three stars followed by the digits 1, 2, 3, 4, and 5).
4. Wait for the 'configuration menu' voice prompt to be played.
5. Dial **31** followed by the **#** key; the current IP address is played.
6. To change the IP address, perform the following:
   a. Press the **#** key.
   b. Dial the configuration server's IP address. Use the star (*) key instead of dots ("."), e.g., 36*44*0*6, and then press **#** to finish.
   c. Review the configuration server's IP address, and then press **1** to save.
7. Dial **32** followed by the **#** key, and then perform the following to change the configuration file name pattern:
   a. Press the **#** key.
   b. Select one of the patterns listed in the table below (*aa.bb.cc.dd* denotes the IP address of the configuration server):

#	Configuration File Name Pattern	Description
1	http://aa.bb.cc.dd/config.ini	Standard config.ini.
2	https://aa.bb.cc.dd/config.ini	Secure HTTP.
3	http://aa.bb.cc.dd/audiocodes/<MAC>.ini	The device's MAC address is appended to the file name (e.g., http://36.44.0.6/audiocodes/00908f012300.ini).
4	http://aa.bb.cc.dd:8080/config.ini	HTTP on port 8080.
5	http://aa.bb.cc.dd:1400/config.ini	HTTP on port 1400.
6	http://aa.bb.cc.dd/cgi-bin/acconfig.cgi?mac=<MAC>&ip=<IP>	Generating configuration per IP/MAC address dynamically, using a CGI script. See perl example below.

   c. Press the selected pattern code, and then press **#** to finish.
8. Press **1** to save, and then hang up the handset. The device retrieves the configuration from the HTTP server.

The following is an example perl CGI script, suitable for most Apache-based HTTP servers for generating configuration dynamically per pattern #6 above. Copy this script to /var/www/cgi-bin/acconfig.cgi on your Apache server and edit it as required:

```
#!/usr/bin/perl
use CGI;
$query = new CGI;
$mac = $query->param('mac');
$ip = $query->param('ip');
print "Content-type: text/plain\n\n";
print "; INI file generator CGI\n";
print "; Request for MAC=$mac IP=$ip\n\n";
print <<"EOF";
SyslogServerIP = 36.44.0.15
EnableSyslog = 1
SSHServerEnable = 1
EOF
```

The table below lists the configuration parameters that can be queried or modified using the voice menu:

Table 3-2: Configuration Parameters Available via the Voice Menu

Item Number at Menu Prompt	Description
1	IP address.
2	Subnet mask.
3	Default Gateway IP address.
4	Primary DNS server IP address.
7	DHCP enable / disable.
31	Configuration server IP address.
32	Configuration file name pattern.
99	Voice menu password (initially 12345). **Note:** The voice menu password can also be changed using the Web interface or *ini* file parameter VoiceMenuPassword (refer to the *User's Manual*).

3.1.4 Assigning an IP Address using CLI

You can assign an IP address to the device, using command-line interface (CLI).

➢ **To assign an IP address using CLI:**

1. Connect the device's RS-232 port to either COM1 or COM2 communication port on your PC (refer to 'Connecting the RS-232 Port to a PC' on page 24).
2. Use a serial communication software (e.g., HyperTerminal™) to establish a serial communication link with the device, using the following communications port settings:
   - **Baud Rate:** 115,200 bps
   - **Data Bits:** 8
   - **Parity:** None
   - **Stop Bits:** 1
   - **Flow Control:** None

   The CLI prompt appears.
3. At the prompt, type the following command, and then press <Enter> to access the configuration folder:

```
conf
```

4. To view the current network parameters, at the prompt, type the following command, and then press <Enter>:

```
GCP IP
```

5. Change the network settings by typing the following command:

```
SCP IP [ip_address] [subnet_mask] [default_gateway]
```

   For example,

```
SCP IP 10.13.77.7 255.255.0.0 10.13.0.1
```

   The new settings take effect on-the-fly and connectivity to the device is active at the new IP address.

Note: For the **SCP IP** command, you must enter all three network parameters (each separated by a space).

6. To save the configuration, at the prompt, type the following command, and then press <Enter>:

```
SAR
```

   The device restarts with the new network settings.

3.2 Configuring Basic SIP Parameters

Once you have completed the previous sections, you are ready to start configuring the device using the Web interface. For information on how to fully configure the device, refer to the device's *User's Manuals*.

➢ To configure basic SIP parameters:

1. Access the Web interface.
2. Select the voice coders used by the device that best suits your VoIP network in the 'Coders Table' page (**Configuration** tab > **VoIP** menu > **Coders And Profiles** submenu > **Coders**).
3. When operating with a Proxy server, perform the following (otherwise, skip to Step 4):
   a. In the 'Proxy & Registration' page (**Configuration** tab > **VoIP** menu > **SIP Definitions** submenu > **Proxy & Registration**):
      - Set the 'Use Default Proxy' field to "Yes".
      - (Optional) In the 'Proxy Name' field, enter the Proxy's name. The Proxy name replaces the Proxy IP address in all SIP messages. This means that messages are still sent to the physical Proxy IP address, but the SIP URI contains the Proxy name instead.
      - To enable the device to register to a Proxy/Registrar server (at power up and every user-defined interval - 'Registration Time' parameter), set 'Enable Registration' to "Enable"'
   b. In the 'Proxy Sets Table' page (**Configuration** tab > **VoIP** menu > **Control Network** submenu > **Proxy Sets Table**), define the IP address(s) of the Proxy server(s). When no Proxy is used, the internal routing table is used to route the calls.
4. Enable the device's channels in the 'Trunk Group Table' page (**Configuration** tab > **VoIP** menu > **GW and IP to IP submenu** > **Trunk Group** > **Trunk Group**).
5. Configure the Trunks in the 'Trunk Settings' page (**Configuration** tab > **VoIP** menu > **PSTN** submenu > **Trunk Settings**). For a brief description, refer to 'Configuring PSTN Trunks' on page 35.
6. If a Proxy server is not implemented, map outgoing calls to IP addresses in the 'Outbound IP Routing' page (**Configuration** tab > **VoIP** menu > **GW and IP to IP** submenu > **Routing** submenu > **Tel to IP Routing**).
7. Save your settings to the flash memory and reset the device (refer to 'Saving Configuration and Resetting the Device' on page 37).

Tip: Once the device is configured, backup your settings by saving the configuration (*ini*) file to your PC. This saved file can later be used, if necessary, to restore configuration settings (refer to 'Backing Up and Restoring Configuration' on page 40).

3.2.1 Enabling Channels and Configuring Call Routing (Example)

This section provides an example for enabling the device's channels and for configuring Tel (PSTN)-to-IP call routing. This includes assigning the channels a telephone number and then routing calls (e.g., of dialed numbers with prefix 10) from these channels to a specific IP destination (e.g., IP address 10.33.24.14).

➢ To enable channels and configure call routing:

1. Assign telephone numbers to endpoints or trunk channels, by performing the following:
   a. Open the 'Trunk Group Table' page (**Configuration** tab > **VoIP** menu > **GW and IP to IP submenu** > **Trunk Group** > **Trunk Group**).

Figure 3-3: Enabling Channels in Trunk Group Table Page

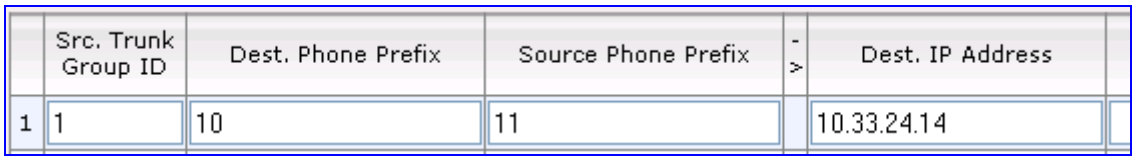
Group Index	Module	From Trunk	To Trunk	Channels	Phone Number	Trunk Group ID	Tel Profile ID
1	Module 1 PRI	1	1	1-31	1100	1	0
2							

   b. Assign telephone numbers to the following interfaces:
      - **FXS:** In the 'Module' column, select 'Module 3 FXS', enter 1-4 (i.e., channels 1 through 4) in the 'Channel(s)' column, and then in the 'Phone Number' column, enter the phone number (e.g., 101) for the first channel. Phone numbers 102, 103, and 104 are sequentially assigned to subsequent channels (i.e., 2 through 4).
      - **FXO:** In the 'Module' column, select 'Module 5 FXO', enter 1-4 (i.e., channels 1 through 4) in the 'Channel(s)' column, enter the phone number (e.g., 201) for the first channel in the 'Phone Number' column, and then enter 1 in the 'Trunk Group ID' column. Phone numbers 202, 203, and 204 are sequentially assigned to subsequent channels (i.e., 2 through 4).
      - **PRI:** In the 'Module' column, select 'Module 1 PRI', select 1 (i.e., trunk 1) in the 'From Trunk' and 'To Trunk' columns, enter 1-30 (i.e., channels 1 through 30) in the 'Channel(s)' column, enter the phone number (e.g., 11000) for the first channel in the 'Phone Number' column, and then enter 2 in the 'Trunk Group ID' column. Phone numbers 11001, 11002, 11003 and so on are sequentially assigned to subsequent channels (i.e., 2 through 30).
      - **BRI:** In the 'Module' column, select 'Module 2 BRI', select 2 (i.e., trunk 2) in the 'From Trunk' and 'To Trunk' columns, enter 1-2 (i.e., channels 1 through 2) in the 'Channel(s)' column, enter the phone number (e.g., 22000) for the first channel in the 'Phone Number' column, and then enter 3 in the 'Trunk Group ID' column. Phone number 22001 is automatically assigned to the subsequent channel (i.e., 2).
   c. Click **Submit**.

2. Configure routing of telephone calls (i.e., Tel or inbound IP) to an IP destination (i.e., IP address):

   a. Open the 'Outbound IP Routing' page (**Configuration** tab > **VoIP** menu > **GW and IP to IP** submenu > **Routing** submenu > **Tel to IP Routing**).

Figure 3-4: Routing Tel Calls to IP



	Src. Trunk Group ID	Dest. Phone Prefix	Source Phone Prefix	->	Dest. IP Address
1	1	10	11		10.33.24.14

   b. In the 'Src. Trunk Group ID' column, enter the Trunk Group number as defined in Step 1.
   c. In the 'Dest. Phone Prefix' column, enter "10" (i.e., prefix of dialed number).
   d. In the 'Source Phone Prefix' column, enter the prefix of the channel's telephone number as defined in Step 1.
   e. In the 'Dest. IP Address' column, enter 10.33.24.14 (i.e., calls are sent to this IP address).
   f. Click **Submit**.

   Therefore, any call whose dialed number prefix matches the value in the 'Dest. Phone Prefix' column (i.e., 10) and whose source phone number prefix matches the value in the 'Source Phone Prefix' column is sent to the IP address defined in the 'Dest. IP Address' column.

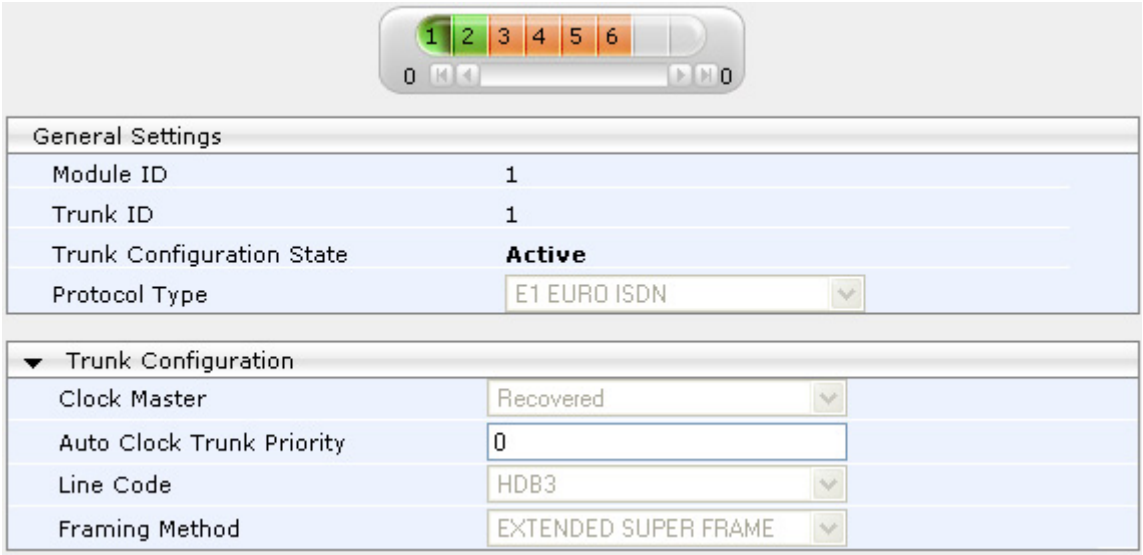
3.2.2 Configuring PSTN Trunks

This section describes how to configure the configure the device's E1/T1 PRI and BRI trunks.

➢ To configure the trunks:

1. Open the 'Trunk Settings' page (**Configuration** tab > **VoIP** menu > **PSTN** submenu > **Trunk Settings**).

Figure 3-5: Trunk Settings Page



2. Click the **Stop Trunk** button (located at the bottom of the page) to de-activate the trunk so that you can configure currently grayed out (unavailable) parameters. (Skip this step if you want to configure parameters that are also available when the trunk is active).

Note: You cannot stop a trunk if it provides the device's clock (assuming the device is synchronized with the E1/T1 clock). If this is the case, then assign a different E1/T1 trunk to provide the device's clock or enable 'TDM Bus PSTN Auto Clock'.

3. From the 'Protocol Type' drop-down list, select the required protocol.

Notes:

- If the 'Protocol Type' field displays 'NONE' (i.e., no protocol type selected) and no other trunks have been configured, after selecting a PRI protocol type, you must reset the device.
- After selecting a PSTN protocol in the 'Protocol Type' field, only the relevant parameters for this protocol are displayed.
- Different protocols (CAS or ISDN variants) can be defined between trunks (subject to the constraints in the device's *Release Notes*).

4. From the 'Framing Method' drop-down list, select the required framing method. For E1 trunks always set this parameter to 'Extended Super Frame'.
5. From the 'Clock Master' drop-down list, select the trunk's clock source:
   - 'Recovered' = clock source is recovered from the trunk.
   - 'Generated' = clock source is provided by the internal TDM bus clock source (according to the parameter 'TDM Bus Clock Source').
6. From the 'Line Code' drop-down list, select the line code:
   - 'B8ZS' (bipolar 8-zero substitution) for T1 trunks only.
   - 'HDB3' (high-density bipolar 3) for E1 trunks only.
   - 'AMI' (for both T1 and E1).
7. (Applicable only to ISDN protocols.) From the 'ISDN Termination Side' drop-down list, select 'User Side' when the PSTN or PBX side is configured as 'Network side', and vice versa. If the device's ISDN termination side is unknown, choose 'User Side' and then access the 'Home' page. If the D-channel alarm is indicated, choose 'Network Side'.
8. To configure the different ISDN behavior bits, either enter the exact hexadecimal value of the bits in the field to the right of the relevant behavior parameter, or directly configure each bit field by completing the following steps:
   a. Click the arrow button to the right of the relevant parameter; the relevant behavior page appears.
   b. Modify each bit field according to your requirements.
   c. Click the **Submit** button to save your changes.
9. Click the **Apply Trunk Settings** button to apply your settings to the trunk.
10. Access the 'TDM Bus Settings' page (**Configuration** tab > **VoIP** menu > **TDM** submenu > **TDM Bus Settings**), and then from the 'PCM Law Select' drop-down list, select 'Alaw' for E1 trunks and 'MuLaw' for T1 trunks.
11. Save the changes to flash memory and reset the device (refer to 'Saving Configuration and Resetting the Device' on page 37).

3.3 Saving Configuration and Resetting the Device

To apply configuration changes to the device's volatile memory (RAM), click the **Submit** button located on the page in which you are configuring. Modifications to parameters with on-the-fly capabilities are immediately applied to the device; other parameters are applied only after a device reset. However, parameters saved to the volatile memory revert to their previous settings after a hardware or software reset (or if the device is powered down). Therefore, to ensure that all parameter changes (whether on-the-fly or not) are retained, you need to save ('burn') them to the device's non-volatile memory (i.e., flash).

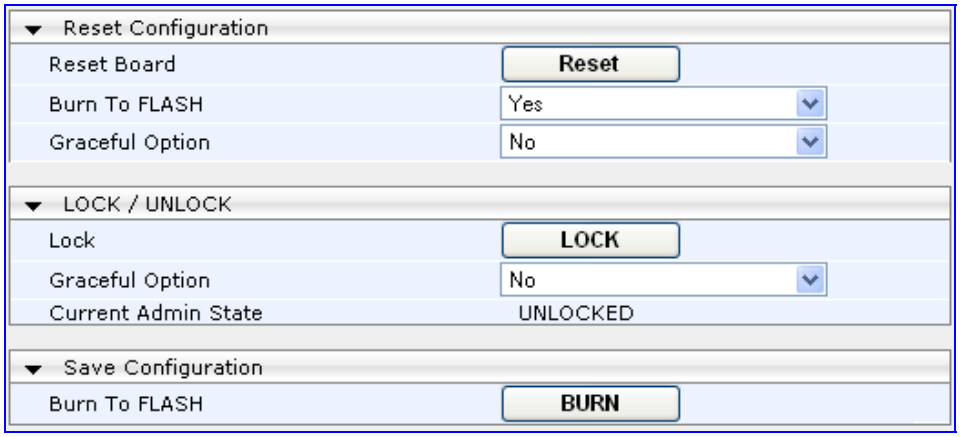
You can also "gracefully lock" the device so that no new calls are allowed and existing calls are terminated only after a user-defined period. This is useful when, for example, you are uploading new software files to the device and you don't want to disrupt existing traffic.

Note: Parameters preceded by the lightning sign are not changeable on-the-fly and require a device reset.

➢ To save parameters to flash memory and reset the device:

1. On the toolbar, click **Device Actions**, and then from the drop-down list, choose **Reset**; the 'Maintenance Actions' page appears.

Figure 3-6: Maintenance Actions Page



2. Under the 'Reset Configuration' group, ensure that 'Yes' is selected in the 'Burn to FLASH' drop-down list.
3. (Optional) To gracefully lock the device, click the **LOCK** button, from the 'Graceful Option' drop-down list select 'Yes', and then define the time (in seconds) after which the device locks.
4. Click the **Reset** button.

3.4 Changing Login User Name and Password

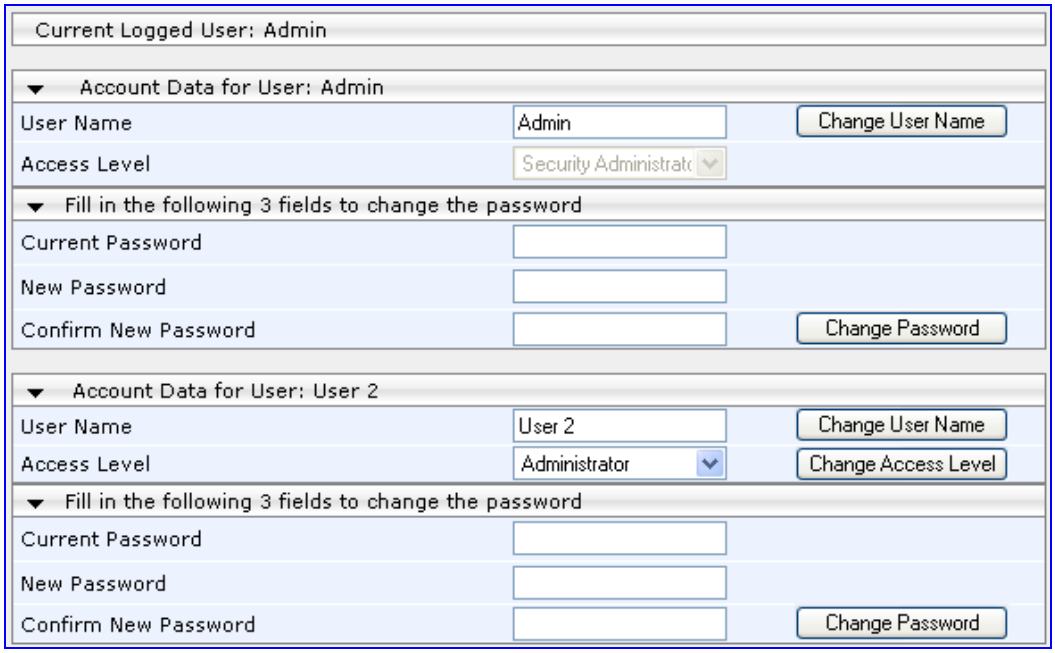
To prevent unauthorized access to the Web interface, two Web user accounts (login accounts) are available (primary and secondary) with assigned user name and password. For detailed information on the Web user accounts, refer to the device's *User's Manual*.

Tip: If you do not know your user name and password, you can use AudioCodes BootP/TFTP utility to access the device, by re-flash the load and resetting the password (refer to the *Product Reference Manual*).

➢ To change the login user name and password:

1. Open the 'WEB User Accounts' page (**Configuration** tab > **System** menu > **Web User Accounts**).

Figure 3-7: WEB User Accounts Page (for Users with 'Security Administrator' Privileges)



2. To change the user name, perform the following:
   a. In the 'User Name' field, enter the new user name (maximum of 19 case-sensitive characters).
   b. Click **Change User Name**; the new user name is applied and the 'Enter Network Password' screen appears.
   c. In the 'Enter Network Password' screen, enter the new user name.
3. To change the password, perform the following:
   a. In the 'Current Password' field, enter the current password (maximum of 19 case-sensitive characters).
   b. In the 'New Password' and 'Confirm New Password' fields, enter the new password.
   c. Click **Change Password**; the new password is applied and the 'Enter Network Password' screen appears. In the 'Enter Network Password' screen, enter the new password.

3.5 Backing Up and Restoring Configuration

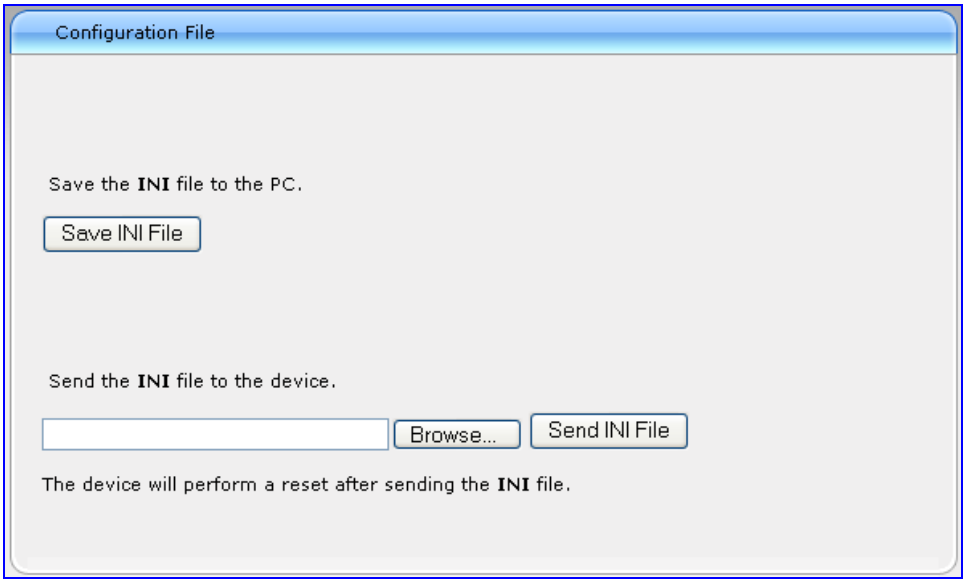
You can save a copy/backup of the device's current configuration settings as an *ini* file to a folder on your PC. The saved *ini* file includes only parameters that were modified and parameters with other than default values. If the device has "lost" its configuration, you can restore the device's configuration by loading the previously saved *ini* file or by loading a newly created *ini* file.

Note: When loading an *ini* file using the method described below, parameters not included in the *ini* file are reset to default settings.

➢ To save and restore the *ini* file:

1. Open the 'Configuration File' page (**Maintenance** tab > **Software Update** menu > **Configuration File**).

Figure 3-8: Configuration File Page



2. To save the *ini* file to a folder on your PC, perform the following:
   a. Click the **Save INI File** button; the 'File Download' dialog box appears.
   b. Click the **Save** button, navigate to the folder in which you want to save the *ini* file on your PC, and then click **Save**; the device copies the *ini* file to the selected folder.
3. To load the *ini* file to the device, perform the following:
   a. Click the **Browse** button, navigate to the folder in which the *ini* file is located, select the file, and then click **Open**; the name and path of the file appear in the field beside the **Browse** button.
   b. Click the **Send INI File** button, and then at the prompt, click **OK;** the device uploads the *ini* file and then resets (from the *cmp* version stored on the flash memory). Once complete, the 'Enter Network Password' dialog box appears, requesting you to enter your user name and password.

3.6 Restoring Factory Defaults

You can use the device's hardware Reset button to restore all the device's configuration settings to factory defaults, including the device's IP address and Web interface's login user name and password.

Notes:

- The device resets to the software version (*cmp* file) saved on its flash memory.
- For additional methods to restore default settings, refer to the *User's Manual*.

➢ To restore the device to factory default settings:

- With a paper clip or any other similar pointed object, press and hold down the Reset button (located on the CPU module) for at least 12 seconds (no more than 25 seconds); the device restores to factory default settings.

3.7 Upgrading the Device

You can upgrade the device with the following files, using the device's Web interface:

- Firmware (*cmp*) file using the Software Update Wizard (refer to 'Upgrading Firmware' on page 42).
- Auxiliary and *ini* files using the 'Load Auxiliary Files' page (refer to 'Upgrading ini and Auxiliary Files' on page 44).

Note: When upgrading the firmware (*cmp*), you can also use the Software Update Wizard to load *ini* and auxiliary files.

3.7.1 Upgrading Firmware

The Software Upgrade Wizard allows you to easily upgrade the device's firmware (*cmp* file). The wizard can also be used to load an *ini* file and/or auxiliary files (e.g., Call Progress Tones), however, this can only be done if a *cmp* file is also loaded to the device at the same time.

For the *ini* and each auxiliary file type, you can choose to load a new file, or not load a file but use the existing file (i.e., maintain existing configuration) running on the device.

Warnings:

- Before upgrading the device, it is recommended that you save a copy of the device's configuration settings (i.e., *ini* file) to your PC. If an upgrade failure occurs, you can then restore your configuration settings by uploading the backup file to the device. For backing up and restoring configuration, refer to 'Backing Up and Restoring Configuration' on page 40.
- The Software Upgrade Wizard requires the device to be reset at the end of the process, which may disrupt traffic. To avoid this, disable all traffic on the device before initiating the wizard, by performing a graceful lock (refer to 'Saving Configuration and Resetting the Device' on page 37).

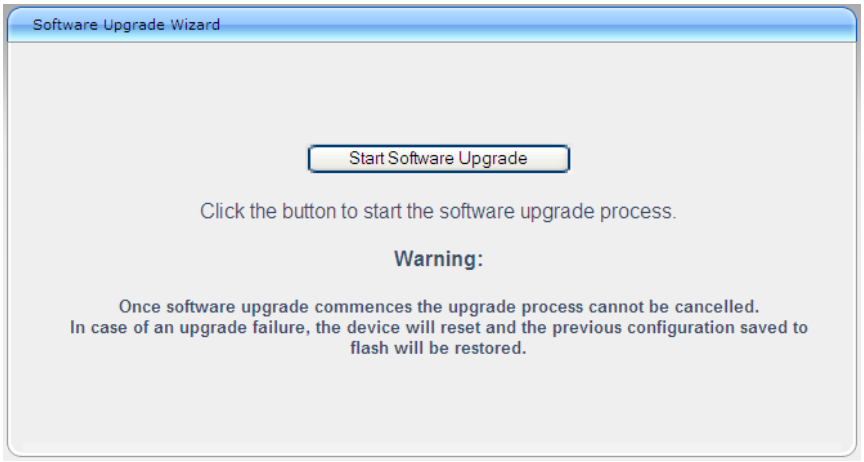
Notes:

- Before you can load an *ini* or any auxiliary file, you must first load a *cmp* file.
- When you activate the wizard, the rest of the Web interface is unavailable. After the files are successfully loaded, access to the full Web interface is restored.
- You can schedule automatic loading of these files using HTTP, HTTPS, FTP, or NFS (refer to the *Product Reference Manual*).

➢ To upgrade the firmware and ini/Auxiliary files:

1. Stop all traffic on the device (refer to the note above).
2. Open the 'Software Upgrade Wizard' (**Maintenance** tab > **Software Update** menu > **Software Upgrade Wizard**); the 'Software Upgrade Wizard' page appears.

Figure 3-9: Start Software Upgrade Wizard Page



3. Click the **Start Software Upgrade** button; the 'Load a CMP file' Wizard page appears.

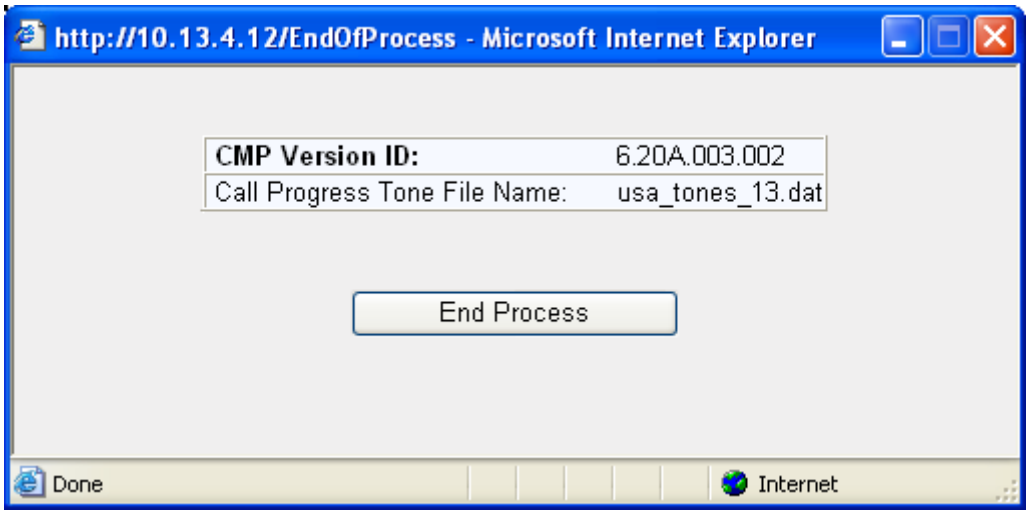
Note: At this stage, you can quit the Software Update Wizard, by clicking **Cancel**, without requiring a device reset. However, once you start uploading a cmp file, the process must be completed with a device reset.

4. Click the **Browse** button, navigate to the *cmp* file, and then click **Send File**; the *cmp* file is loaded to the device and you're notified as to a successful loading.
5. Click one of the following buttons:
   - **Reset**; the device resets with the newly loaded *cmp,* utilizing the existing configuration and auxiliary files.
   - **Next**; the 'Load an *ini* File' wizard page opens.

   Note that as you progress by clicking **Next**, the relevant file name corresponding to the applicable Wizard page is highlighted in the file list on the left.
6. In the 'Load an *ini* File' page, you can now choose to either:
   - Click **Browse**, navigate to the *ini* file, and then click **Send File**; the *ini* file is loaded to the device and you're notified as to a successful loading.
   - Use the *ini* file currently used by the device, by not selecting an *ini* file and by ensuring that the 'Use existing configuration' check box is marked (default).
   - Return the device's configuration settings to factory defaults, by not selecting an *ini* file and by clearing the 'Use existing configuration' check box.

7. You can now choose to either:
   - Click **Reset**; the device resets, utilizing the new *cmp* and *ini* file you loaded up to now as well as utilizing the other auxiliary files.
   - Click **Back**; the 'Load a *cmp* file' page is opened again.
   - Click **Next**; the next page opens for loading the next consecutive auxiliary file listed in the Wizard.
8. For loading the auxiliary files, follow the same procedure as for loading the *ini* file (Step 6).
9. In the 'FINISH' page, complete the upgrade process by clicking **Reset;** the device 'burns' the newly loaded files to flash memory and then resets the device. After the device resets, the 'End Process' screen appears, displaying the burned configuration files (refer to the figure below).

Figure 3-10: End Process Wizard Page



10. Click **End Process** to close the wizard, and then in the 'Enter Network Password' dialog box, enter your login user name and password (described in Accessing the Web Interface) and click **OK**; a message box appears informing you of the new CMP file.
11. Click **OK**; the Web interface now becomes active and reflecting the upgraded device.

3.7.2 Loading ini and Auxiliary Files

You can load the device with a configuration file (i.e., *ini* file) and Auxiliary files (e.g., Call Progress Tones or Dial Plan files) for enhanced provisioning. For a detailed description of the Auxiliary files, refer to the device's *User's Manual*.

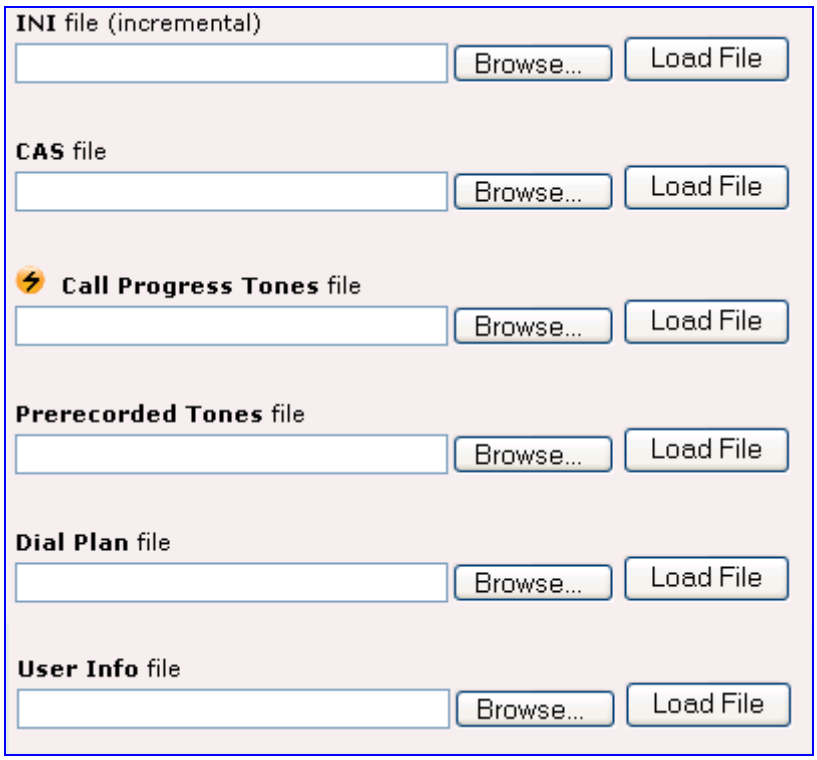
Notes:

- The current settings of parameters that are not included in the *ini* file are retained (*incremental*).
- After loading the *ini* file, the device does not reset. Some files (e.g., Call Progress Tones) are not changeable on-the-fly and require a device reset.
- Saving an auxiliary file to flash memory may disrupt traffic on the device. To avoid this, disable all traffic on the device, by performing a graceful lock (refer to 'Saving Configuration and Resetting the Device' on page 37).
- You can also use BootP to load the auxiliary files to the device (refer to the *Product Reference Manual*).

➢ **To load an *ini* file and/or auxiliary files to the device:**

1. Open the 'Load Auxiliary Files' page (**Maintenance** tab > **Software Update** menu > **Load Auxiliary Files**).

Figure 3-11: Load Auxiliary Page



2. Click the **Browse** button corresponding to the file type that you want to load, navigate to the folder in which the file is located, and then click **Open**; the name and path of the file appear in the field next to the **Browse** button.
3. Click the **Load File** button corresponding to the field that contains the file you want to load.
4. Save to flash memory and reset (if required) the device (refer to 'Saving Configuration and Resetting the Device' on page 37).

4 Monitoring the Device

You can monitor the operating status of the device by viewing one of the following:

- Front-panel LEDs (refer to 'Front-Panel LEDs' on page 47).
- Home page of the Web interface (refer to 'Web Interface' on page 48).

4.1 Front-Panel LEDs

The location of the device's front panel LEDs are shown in the figure below and described in the subsequent tables.

Figure 4-1: Location of LEDs on I/O Modules

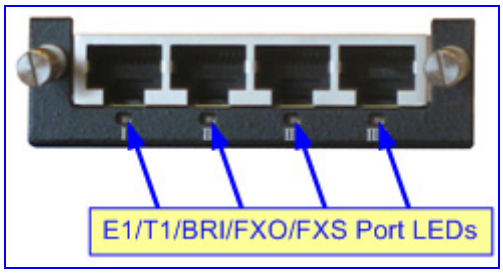


Table 4-1: Analog I/O (FXS/FXO) Modules LED Description

I/O Port LED	Color	State	Description
RJ-11	**Green**	On	▪ FXS: phone is off-hooked. ▪ FXO: off-hooks the line toward the PBX.
		Blinking	▪ FXS: rings the extension line. ▪ FXO: detects a ring signal from the PBX.
	Red	On	Error (malfunction in line).

Table 4-2: E1/T1 PRI I/O TRUNKS Modules LED Description

LED	Color	State	Description
RJ-48c	**Green**	On	Trunk is synchronized (normal operation).
	Red	On	Loss due to any of the following signals: ▪ LOS - Loss of Signal ▪ LOF - Loss of Frame ▪ AIS - Alarm Indication Signal (the Blue Alarm) ▪ RAI - Remote Alarm Indication (the Yellow Alarm)
	-	Off	Failure/disruption in the AC power supply or the power is currently not being supplied to the device through the AC power supply entry.

Table 4-3: BRI I/O Modules LED Description

LED	Color	State	Description
RJ-45	**Green**	On	Physical layer (Layer 1) is synchronized (normal operation).
	Red	On	Physical layer (Layer 1) is not synchronized.
	-	Off	Trunk is not active.

Table 4-4: Power Supply Module LED Description

LED	Color	State	Description
POWER	**Green**	On	The LED of each AC power supply is lit green when the power supply is operating correctly.
	-	Off	Failure / disruption in the AC supply, or the power is currently not being supplied to the device through the AC power supply entry.

Table 4-5: CPU Module LEDs Description

LED	Item #	Color	State	Description
Ethernet Ports I & II	2 (Left LED)	**Orange**	Blinking	Activity.
	2 (Right LED)	**Green**	On	Link OK.
		Yellow	Blinking	Data is being received.
		-	Off	No link.
General Purpose	3	**Green**	N/A. (Future support.)	

4.2 Web Interface

The Web interface's Home page allows online monitoring of the device. This is provided by a graphical display of the device's front panel showing color-coded icons, depicting the status of ports/channels and other interfaces. In addition, currently active alarms can also be viewed.

4.2.1 Viewing Alarms

The 'Home' page provides a link to the 'Active Alarms' page, which lists all the device's current alarms. This page is typically accessed using the following navigation path: **Status & Diagnostics** tab > **System Status** menu > **Carrier-Grade Alarms** > **Active Alarms**.

➢ To view current alarms:

- In the 'Home' page, click the area labeled **Alarms**; the 'Active Alarms' page appears:

Figure 4-2: Current Alarms in Active Alarms Page

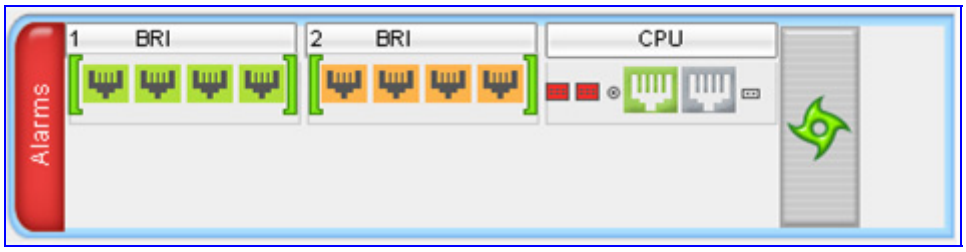
For each listed alarm, the following information is displayed:

- **Severity:** severity level of the alarm:
  - Critical (displayed in red)
  - Major (displayed in orange)
  - Minor (displayed in yellow)
  - No alarm (displayed in green)
- **Source:** element from which the alarm was generated
- **Description:** brief explanation of the alarm
- **Date:** date and time that the alarm was generated

4.2.2 Viewing Channel Status

The 'Home' page displays channel port icons that indicate the voice channels' operating status. You can use these port icons to drill down to view detailed channel status. For a detailed description of the 'Home' page, refer to the device's *User's Manual*.

Figure 4-3: Home Page Displaying Color-Coded Channel Icons



You can drill-down to view a detailed status of each channel or trunk.

➢ To view a detailed status of a channel or trunk:

1. In the 'Home' page, click the port of whose status you want to view; a shortcut menu appears.
2. From the shortcut menu, choose **Port Settings**.

AudioCodes

Installation Manual Ver. 6.2

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